03-21-05

B/IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No. : 09/925,673

Applicants : Masakatsu KANEKO et al.

Filed : August 9, 2001

For : NOVEL NUCLEOSIDE AND OLIGONUCLEOTIDE ANALOGUES

Art Unit : 1623

Examiner : Howard Owens, Jr.

Docket No. : 01376CIP/HG

Customer No.: 01933

Confirm. No.: 4630

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Date of Deposit: March 18, 2005
I hereby certify that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 with sufficient postage on the date indicated above and is addressed to:
MAIL STOP PETITIONS
Commissioner for Patents,
P.O. Box 1450
Alexandria, VA 22313-1450

Dorothy DeFrancesco

In the event that this Paper is late filed, and the necessary petition for extension of time is not filed concurrently herewith, please consider this as a Petition for the requisite extension of time, and to the extent not tendered by check attached hereto, authorization to charge the extension fee, or any other fee required in connection with this Paper to Account No. 06-1378.

PETITION TO RESET PERIOD FOR RESPONSE DUE TO POSTMARK DATE MORE THAN ONE MONTH LATER THAN MAIL DATE PRINTED ON PTO NOTICE OF ALLOWANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

MAIL STOP PETITIONS

S I R :

1. This petition is being filed to restart the period of response as of March 4, 2005 to the PTO NOTICE OF ALLOWANCE having a "DATE MAILED" of January 31, 2005. A copy of the first page of the PTO NOTICE OF ALLOWANCE showing the mailing date of January 31, 2005 is attached hereto.

2. This petition is being filed within two weeks of the receipt in our office (the "correspondence address") of the PTO NOTICE OF ALLOWANCE on March 4, 2005.

3. The response period was for payment of the issue fee.

4. Enclosed herewith are the following:

(a) evidence showing the March 4, 2005 date of receipt of the PTO NOTICE OF ALLOWANCE at the correspondence address (our office), namely (i) a copy of the PTO NOTICE OF ALLOWANCE (including the Notice of Allowability) with our date stamp which states as follows: "RECEIVED MAR -4 2005 FRISHAUF, HOLTZ, GOODMAN & CHICK, P.C.", (ii) a copy of our firm's daily log including entries of papers received from the PTO on March 4, 2005 (see the entry of March 4, 2005 which reads as follows: "1/31 01376CIP HG IF KANEKO 09/925673 05/02/05", wherein "IF" means Issue Fee);

(b) a copy of the envelope that contained the PTO NOTICE OF ALLOWANCE showing the postmark date of March 4, 2005; and

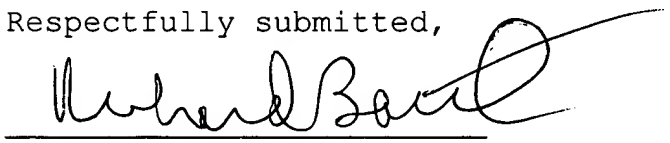
(c) a statement setting forth the March 4, 2005 date of the receipt of the PTO NOTICE OF ALLOWANCE at the correspondence address (our office) and stating that the PTO NOTICE OF ALLOWANCE was received in the aforesaid post-marked envelope.

5. The petition fee (37 C.F.R. 1.17(h) - $130.00) is paid as follows: attached is a check in the amount of $130.

Please charge any additional fees required by this paper or credit any overpayment to Deposit Account NO. 06-1378.

It is respectfully submitted that all the requirements for restarting the period for response to the NOTICE OF ALLOWANCE from March 4, 2005 have been met. The granting of this Petition is respectfully requested.

Respectfully submitted,



RICHARD S. BARTH
REG. NO. 28,180

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Tel. Nos. (212) 319-4900
(212) 319-4551/Ext. 219
Fax No. (212) 319-5101
E-Mail Address: BARTH@FHGC-LAW.COM
RSB/ddf

Encs.: (1) Copy of NOTICE OF ALLOWANCE having date stamp of March 4, 2004 (including Notice of Allowability)

(2) Copy of our firm's daily log showing the entry date of March 4, 2005 when the PTO NOTICE OF ALLOWANCE was received

(3) Copy of envelope from the PTO that contained the NOTICE OF ALLOWANCE showing the postmark date

(4) EVIDENCE AND STATEMENT ACCOMPANYING PETITION TO RESET PERIOD FOR RESPONSE DUE TO POSTMARK DATE BEING MORE THAN ONE MONTH LATER THAN MAIL DATE PRINTED ON PTO NOTICE OF ALLOWANCE, including copies of the following: (a) AMENDMENT in SN 09/925,673 filed August 17, 2004; (b) INFORMATION DISCLOSURE STATEMENT (including Form PTO/SB/08A) filed on August 17, 2004 in SN 09/925,673; and (c) AMENDMENT UNDER 37 CFR 1.312 dated December 20, 2004 in SN 10/208,650

(5) Check for $130

March 02, 2005 (cont).

w2/28	05001	LH	Decl.	Ouchi	11/032,202	04/28/05
			March 03, 2005			
3/1	04B00	HG	1-OA	Mio	10/495,897	4/1/05
	04440	RPM	N. of Pub.	Sun Md. kk.	79/000,104	———
3/1	02127C	RSB	IF	Ogawa	10/090,282	06/01/05
2/28	01375	LH	N. of Aban.	Nishio	09/888,484	———
2/28	03329	LH	1-OA	Koreki	10/449,802	03/28/05
3/1	00646	LH	N. of Aban	Tabata	09/659,771	———
3/1	02640	LH	FOA	Yamauchi	10/315,714	06/01/05
3/1	03718	LH	IF	Osaka	10/724,242	06/01/05
3/1	03025	RSB	IF	Mitsuhashi	10/348,560	06/01/05
3/1	02708	LH	IF	Ishizaki	10/322,942	06/01/05
			March 04, 2005			
2/2	01447	LH	1-OA	Uchino	09/890,441	04/02/05
3/2	03309	LH	FOA	kawamoto	10/445,630	06/02/05
3/2	02160	LH	FOA	kizaki	10/099,306	06/02/05
3/2	04816C	HG	Dec.	Okazaki	11/037,502	05/02/05
3/2	01589	LH	FOA	Arai	09/955,858	06/02/05
3/1	02360D1	LH	3-OA	Okamoto	10/916,997	06/01/05
3/2	02360D2	LH	IF	Okamoto	10/916,996	06/02/05
3/1	01638	RPM	N. of Aban.	Noda	09/980,262	———
~~3/2~~	~~05027~~	~~LH~~			11/037,509	———
3/2	03089	HG	1-OA	Saito	10/371,364	04/02/05
3/1	04828	LH	Decl.	Iizuka	10/998,235	05/01/05
3/2	03712	LH	Supp. Allow.	Akagi	29/194,551	IF Pd.
~~3/1~~	~~04436~~	~~LH~~		Yadidya	10/500,607	———
3/1	04779	MJC	PCT. Decl.	Takao	10/514,981	05/02/05
2/28	04373	LH	Supp. Allow	Saka	10/863,879	IF Pd.
1/31	0B746C1P	HG	IF	kaneko	09/925,078	05/02/05
			March 07, 2005			
3/3	98595A	LH/AH	3-OA	Ogawa	10/395,350	06/03/05
3/4	03191	LH	3-OA	kimura	10/396,307	06/04/05
3/4	02070	RSB	3-OA	Oita	10/067,124	06/04/05

March 02, 2005 (cont).

W2/28	D5001	LH	Decl.	Duchi	11/032,202	04/28/05
			March 03, 2005			
3/1	D4B00	HG	1-OA	Mio	10/495,897	4/1/05
	D4440	RPM	N. of Pubo.	Sun Md. kk.	79/000,104	———
3/1	D2127C	RSB	IF	Dagoo	10/090,282	06/01/05
2/28	D1375	LH	N. of Aban.	Nishio	09/888,484	———
2/28	03329	LH	1-OA	Koreki	10/449,802	03/28/05
3/1	D0646	LH	N. of Aban	Tabata	09/659,771	———
3/1	D2640	LH	FOA	Yamauchi	10/315,714	06/01/05
3/1	D3718	LH	IF	Iwaoka	10/724,242	06/01/05
3/1	D3025	RSB	IF	Mizuhashi	10/348,500	06/01/05
3/1	D2708	LH	IF	Yohizaki	10/322,942	06/01/05
			March 04, 2005			
3/2	D1447	LH	1-OA	Uchino	09/890,441	04/02/05
3/2	D3309	LH	FOA	Kawamoto	10/445,630	06/02/05
3/2	D2160	LH	FOA	Kizaki	10/099,300	06/02/05
3/2	D4816C	HG	Decl.	Okazaki	11/037,502	05/02/05
3/2	D1589	LH	FOA	Arai	09/955,858	06/02/05
3/1	D2360D1	LH	3-OA	Okamoto	10/916,997	06/01/05
3/2	D2360D2	LH	IF	Okamoto	10/916,996	06/02/05
3/1	D1638	RPM	N. of Aban.	Noda	09/980,262	———
~~3/2~~	~~D5027~~	~~LH~~			11/037,509	———
3/2	03089	HG	1-OA	Saito	10/371,364	04/02/05
3/1	04828	LH	Decl.	Iizuka	10/998,235	05/01/05
3/2	03712	LH	Supp. Allow.	Akagi	29/194,551	IF Pd.
~~3/1~~	~~04B30~~	~~LH~~		Ipadoya	10/560,607	———
3/1	04779	MJC	PCT. Decl.	Takao	10/514,981	05/01/05
2/28	04373	LH	Supp. Allow	Ioka	10/863,879	IF Pd.
1/31	UB76C1P	HG	IF	Kaneko	09/925,028	05/02/05
			March 07, 2005			
3/3	9B595A	LH/AH	3-OA	Ogawa	10/395,350	06/03/05
3/4	03191	LH	3-OA	Kimura	10/390,307	06/04/05
3/4	02C70	RSB	3-OA	Ueda	10/607,124	06/04/05

AFTER 10 DAYS RETURN TO:
Organization TC1600 Bldg./Rm. REMSEN

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231

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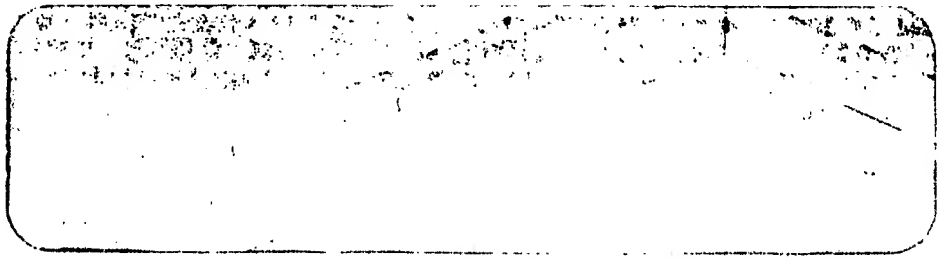
FRISHAUF, HOLTZ, GOODMAN & CHICK, P.C.



42

1001749003 30

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No. : 09/925,673

Applicants : Masakatsu KANEKO et al.

Filed : August 9, 2001

For : NOVEL NUCLEOSIDE AND OLIGONUCLEOTIDE ANALOGUES

Art Unit : 1623

Examiner : Howard Owens, Jr.

Docket No. : 01376CIP/HG

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Dorothy DeFrancesco

Dorothy DeFrancesco

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EVIDENCE AND STATEMENT ACCOMPANYING PETITION TO RESET PERIOD FOR RESPONSE DUE TO POSTMARK DATE BEING MORE THAN ONE MONTH LATER THAN MAIL DATE PRINTED ON PTO NOTICE OF ALLOWANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

MAIL STOP PETITIONS

S I R :

1. I, Richard S. Barth, hereby state that the PTO NOTICE OF ALLOWANCE bearing a "DATE MAILED" of January 31, 2005, as shown on the first page thereof that accompanies this petition, was received at the correspondence address (our office) on March 4, 2005.

2. The evidence showing the date of receipt of the PTO NOTICE OF ALLOWANCE at the correspondence address of the applicants is as follows:

(a) a copy of the first page of the PTO NOTICE OF ALLOWANCE showing the date of receipt at the correpondence address of March 4, 2005 stamped thereon;

(b) a copy of the envelope that contained the PTO NOTICE OF ALLOWANCE showing its postmark date of March 3, 2005;

(c) a copy of our firm's daily log maintained for the receipt of mail from the PTO showing the entry of the date of receipt of the PTO NOTICE OF ALLOWANCE, namely March 4, 2005.

3. I state that the above-described evidence fully establishes the March 3, 2005 date of the postmark and the March 4, 2005 date of the receipt of the PTO NOTICE OF ALLOWANCE.

4. The additional time requested herein to pay the Issue Fee is needed so that errors in the PTO record may be corrected. Such errors are discussed hereinbelow.

5. (a) The NOTICE OF ALLOWABILITY states as follows: "The allowed claims is/are 1-77." This was the correct numbering of claims prior to the filing of the RCE on August 17, 2004. The AMENDMENT filed on August 17, 2004 together with said RCE amended

some of the claims; canceled other claims; and added new claims, resulting in a total of 56 claims pending in the application. This erroneous identification of the allowed claims has been called to the attention of the Examiner during a recent telephone conversation between the Examiner and the undersigned.

A copy of said AMENDMENT dated August 17, 2004, which was downloaded from the PAIR system showing a PTO date stamp receipt of August 17, 2004, is enclosed.

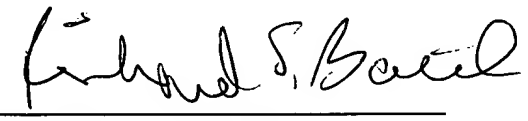
(b) The NOTICE OF ALLOWABILITY returned the following IDS documents with the Examiner's initials in the left column: (i) Form PTO/SB/08A (one page) and Form PTO/SB/08B (one page), each dated September 16, 2004 and (ii) the Form PTO/SB/08A dated September 30, 2004.

(c) The NOTICE OF ALLOWABILITY did not return an initialed copy of the Form PTO/SB/08A (one page) dated August 17, 2004, which was filed together with said RCE on August 17, 2004. A copy of the INFORMATION DISCLOSURE STATEMENT dated August 17, 2004, which includes said Form PTO/SB/08A which was downloaded from the PAIR system showing a PTO date stamp receipt of August 17, 2004, is enclosed herewith. During the aforesaid telephone conversation with the Examiner, the non-receipt of an initialed copy of said Form PTO/SB/08A dated August 17, 2004 was called to the Examiner's attention. Although each of the four

United States patent documents identified on said August 17, 2004 Form PTO/SB/08A is considered relevant, the patent document US 2003/0144231A1, which is the publication of SN 10/208,650 is particularly relevant in view of the allowed claims, which are different than the original claims printed in US 2003/0144231A1 and which are more relevant than the claims printed in US 2003/0144231A1. For the Examiner's convenience, submitted concomitantly herewith is a copy of the AMENDMENT UNDER 37 C.F.R. § 1.312 in SN 10/208,650 which contains the allowed claims (which was downloaded from the public PAIR system), which is dated and was filed on December 20, 2004.

(d) A copy of our postcard receipt for our said AMENDMENT filed on August 17, 2004 and our said INFORMATION DISCLOSURE STATEMENT filed on August 17, 2004 is enclosed.

Respectfully submitted,



RICHARD S. BARTH
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E-Mail Address: BARTH@FHGC-LAW.COM
RSB/ddf

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AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ATTENTION: MAIL STOP RCE

S I R :

Please amend the above-identified application as follows.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

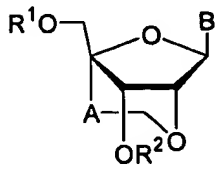
Remarks begin on page 30 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1. (currently amended) A compound of formula (1):



(1)

wherein:

R^1 and R^2 are the same or different and are selected from the group consisting of hydrogen atoms, hydroxyl protecting groups, phosphate groups, protected phosphate groups and a group of formula $-P(R^3)R^4$, wherein R^3 and R^4 are the same or different and are selected from the group consisting of hydroxyl groups, protected hydroxyl groups, mercapto groups, protected mercapto groups, amino groups, alkoxy groups having from 1 to 4 carbon atoms, alkylthio groups having from 1 to 4 carbon atoms, cyanoalkoxy groups having from 1 to 5 carbon atoms and amino groups substituted by an alkyl group having from 1 to 4 carbon atoms;

A represents ~~an alkylene~~ a methylene group ~~having from 1 to 4 carbon atoms~~; and
B is selected from the group consisting of unsubstituted purin-9-yl groups, unsubstituted 2-oxo-pyrimidin-1-yl groups, and substituted purin-9-yl groups and substituted 2-oxo-pyrimidin-1-yl groups having at least one substituent α selected from the group consisting of hydroxyl groups, protected hydroxyl groups, alkoxy groups having from 1 to 4 carbon atoms, mercapto groups, protected mercapto groups, alkylthio groups having from 1 to 4 carbon atoms, amino groups, protected amino groups, amino groups substituted by an alkyl group having from 1 to 4 carbon atoms, alkyl groups having from 1 to 4 carbon atoms and halogen atoms;

or a salt thereof.

Claim 2. (original) The compound according to Claim 1 or a salt thereof, wherein R^1 is selected from the group consisting of hydrogen atoms, aliphatic acyl groups, aromatic acyl groups, methyl groups substituted by from 1 to 3 aryl groups, methyl groups substituted by from 1 to 3 aryl groups the aryl ring of which is substituted by a substituent selected from the group consisting of lower alkyl, lower alkoxy, halogen and cyano groups, and silyl groups.

Claim 3. (original) The compound according to Claim 1 or a salt thereof, wherein R^1 is selected from the group consisting of hydrogen atoms, acetyl groups, benzoyl groups, benzyl groups, p-

methoxybenzyl groups, dimethoxytrityl groups, mono-methoxytrityl groups and tert-butyldiphenylsilyl groups.

Claim 4. (original) The compound according to Claim 1 or a salt thereof, wherein R^2 is selected from the group consisting of hydrogen atoms, aliphatic acyl groups, aromatic acyl groups, methyl groups substituted by from 1 to 3 aryl groups, methyl groups substituted by from 1 to 3 aryl groups the aryl ring of which is substituted by a substituent selected from the group consisting of lower alkyl, lower alkoxy, halogen and cyano groups, silyl groups, phosphoramidite groups, phosphonyl groups, phosphate groups and protected phosphate groups.

Claim 5. (original) The compound according to Claim 2 or a salt thereof, wherein R^2 is selected from the group consisting of hydrogen atoms, aliphatic acyl groups, aromatic acyl groups, methyl groups substituted by from 1 to 3 aryl groups, methyl groups substituted by from 1 to 3 aryl groups the aryl ring of which is substituted by a substituent selected from the group consisting of lower alkyl, lower alkoxy, halogen and cyano groups, silyl groups, phosphoramidite groups, phosphonyl groups, phosphate groups and protected phosphate groups.

Claim 6. (original) The compound according to Claim 3 or a salt thereof, wherein R^2 is selected from the group consisting of hydrogen atoms, aliphatic acyl groups, aromatic acyl groups,

methyl groups substituted by from 1 to 3 aryl groups, methyl groups substituted by from 1 to 3 aryl groups the aryl ring of which is substituted by a substituent selected from the group consisting of lower alkyl, lower alkoxy, halogen and cyano groups, silyl groups, phosphoramidite groups, phosphonyl groups, phosphate groups and protected phosphate groups.

Claim 7. (original) The compound according to Claim 1 or a salt thereof, wherein R^2 is selected from the group consisting of hydrogen atoms, acetyl groups, benzoyl groups, benzyl groups, p-methoxybenzyl groups, tert-butyldiphenylsilyl groups, $-P(OC_2H_4CN)(NCH(CH_3)_2)$, $-P(OCH_3)(NCH(CH_3)_2)$, phosphonyl groups, 2-chlorophenyl phosphate groups and 4-chlorophenyl phosphate groups.

Claim 8. (original) The compound according to Claim 2 or a salt thereof, wherein R^2 is selected from the group consisting of hydrogen atoms, acetyl groups, benzoyl groups, benzyl groups, p-methoxybenzyl groups, tert-butyldiphenylsilyl groups, $-P(OC_2H_4CN)(NCH(CH_3)_2)$, $-P(OCH_3)(NCH(CH_3)_2)$, phosphonyl groups, 2-chlorophenyl phosphate groups and 4-chlorophenyl phosphate groups.

Claim 9. (original) The compound according to Claim 3 or a salt thereof, wherein R^2 is selected from the group consisting of hydrogen atoms, acetyl groups, benzoyl groups, benzyl groups,

p-methoxybenzyl groups, tert-butyldiphenylsilyl group, $-P(OC_2H_4CN)(NCH(CH_3)_2)$, $-P(OCH_3)(NCH(CH_3)_2)$, phosphonyl groups, 2-chlorophenyl phosphate groups and 4-chlorophenyl phosphate groups.

Claim 10. (canceled)

Claim 11. (canceled)

Claim 12. (canceled)

Claim 13. (canceled)

Claim 14. (canceled)

Claim 15. (canceled)

Claim 16. (canceled)

Claim 17. (canceled)

Claim 18. (canceled)

Claim 19. (previously presented) The compound according to Claim 1 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl, 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group

of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl, 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 20. (previously presented) The compound according to Claim 2 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-

yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 21. (previously presented) The compound according to Claim 3 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino

group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl groups, the amino group of which is protected.

Claim 22. (previously presented) The compound according to Claim 4 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-

methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 23. (previously presented) The compound according to Claim 5 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 24. (previously presented) The compound according to Claim 6 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 25. (previously presented) The compound according to Claim 7 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino

group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 26. (previously presented) The compound according to Claim 8 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-

fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 27. (previously presented) The compound according to Claim 9 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-

hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 28. (canceled)

Claim 29. (canceled)

Claim 30. (canceled)

Claim 31. (canceled)

Claim 32. (canceled)

Claim 33. (canceled)

Claim 34. (canceled)

Claim 35. (canceled)

Claim 36. (canceled)

Claim 37. (original) The compound according to Claim 1 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 38. (original) The compound according to Claim 2 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 39. (original) The compound according to Claim 3 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 40. (original) The compound according to Claim 4 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl,

Claim 114. (new) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein B is a 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl group.

Claim 24. (previously presented) The compound according to Claim 6 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 25. (previously presented) The compound according to Claim 7 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino

group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 26. (previously presented) The compound according to Claim 8 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-

fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 27. (previously presented) The compound according to Claim 9 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diaminopurin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-

hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloropurin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 28. (canceled)

Claim 29. (canceled)

Claim 30. (canceled)

Claim 31. (canceled)

Claim 32. (canceled)

Claim 33. (canceled)

Claim 34. (canceled)

Claim 35. (canceled)

Claim 36. (canceled)

Claim 37. (original) The compound according to Claim 1 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 38. (original) The compound according to Claim 2 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 39. (original) The compound according to Claim 3 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 40. (original) The compound according to Claim 4 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl,

cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 41. (original) The compound according to Claim 5 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 42. (original) The compound according to Claim 6 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 43. (original) The compound according to Claim 7 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 44. (original) The compound according to Claim 8 or a salt thereof, wherein B is selected from the group consisting

of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 45. (original) The compound according to Claim 9 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 46. (canceled)

Claim 47. (canceled)

Claim 48. (canceled)

Claim 49. (canceled)

Claim 50. (canceled)

Claim 51. (canceled)

Claim 52. (canceled)

Claim 53. (canceled)

Claim 54. (canceled)

Claim 55. (original) A compound or a salt thereof selected from the group consisting of

2'-O,4'-C-ethyleneguanosine,

2'-O,4'-C-ethyleneadenosine,

3',5'-di-O-benzyl-2'-O,4'-C-ethylene-6-N-benzoyladenosine,

3',5'-di-O-benzyl-2'-O,4'-C-ethylene-2-N-isobutyrylguanosine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-6-N-benzoyladenosine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-2-N-isobutyrylguanosine,
2'-O,4'-C-ethylene-2-N-isobutyrylguanosine,
2'-O,4'-C-ethylene-6-N-benzoyladenosine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-6-N-benzoyladenosine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-2-N-isobutyrylguanosine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite,
2'-O,4'-C-ethyleneuridine,
2'-O,4'-C-ethylene-5-methyluridine,
2'-O,4'-C-ethylenecytidine,
2'-O,4'-C-ethylene-5-methylcytidine,
3',5'-di-O-benzyl-2'-O,4'-C-ethyleneuridine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethyleneuridine,
3',5'-di-O-benzyl-2'-O,4'-C-ethylene-5-methyluridine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-5-methyluridine,
3',5'-di-O-benzyl-2'-O,4'-C-ethylene-4-N-benzoylcytidine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoylcytidine,
3',5'-di-O-benzyl-2'-O,4'-C-ethylene-4-N-benzoyl-5-methylcytidine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoyl-5-methylcytidine,
2'-O,4'-C-ethylene-4-N-benzoylcytidine,
2'-O,4'-C-ethylene-4-N-benzoyl-5-methylcytidine,
5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-uridine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite,

5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-5-methyluridine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite, 5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoylcytidine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite, and 5'-O-dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoyl-5-methylcytidine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite.

Claim 56. (original) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-5-methyluridine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite or a salt thereof.

Claim 57. (original) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-6-N-benzoyladenosine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite or a salt thereof.

Claim 58. (original) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-2-N-isobutyrylguanosine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite or a salt thereof.

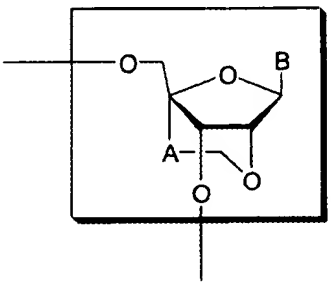
Claim 59. (original) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-uridine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite or a salt thereof.

Claim 60. (original) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoylcytidine-3'-O-(2-cyanoethyl N,N-

diisopropyl)phosphoramidite or a salt thereof.

Claim 61. (original) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoyl-5-methylcytidine-3'-O-(2-cyanoethyl N,N-diisopropyl)phosphoramidite or a salt thereof.

Claim 62. (currently amended) An oligonucleotide analogue comprising two or more nucleoside units wherein at least one of said nucleoside units is a structure of the formula (2):



(2)

wherein:

A represents ~~an alkylene~~ a methylene group ~~having from 1 to 4 carbon atoms~~; and

B is selected from the group consisting of an unsubstituted purin-9-yl group, an unsubstituted 2-oxo-pyrimidin-1-yl group, a purin-9-yl group substituted with at least one substituent α and a 2-oxo-pyrimidin-1-yl group substituted with at least one substituent α, said substituent α being selected from the group consisting of an unprotected hydroxyl group, a protected hydroxyl

group, an alkoxy group having from 1 to 4 carbon atoms, an unprotected mercapto group, a protected mercapto group, an alkylthio group having from 1 to 4 carbon atoms, an unprotected amino group, a protected amino group, an amino group substituted by an alkyl group having from 1 to 4 carbon atoms, an alkyl group having from 1 to 4 carbon atoms and a halogen atom; or a salt thereof.

Claim 63. (original) The oligonucleotide analogue according to claim 62 or a salt thereof, which comprises up to 100 nucleoside units and wherein nucleoside units are bonded to each other through a phosphodiester bond or a phosphorothioate bond.

Claim 64. (original) The oligonucleotide analogue according to claim 62 or a salt thereof which comprises 2 to 50 nucleoside units; and when said oligonucleotide analogue contains two or more nucleoside units of the structure of said formula (2), said nucleoside units of the structure of formula (2) are the same or different, and wherein said salt is a pharmaceutically acceptable salt.

Claim 65. (original) The oligonucleotide analogue according to claim 64 or a salt thereof which comprises 10 to 30 nucleoside units.

Claim 66. (original) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein said nucleoside units are bonded to each other through a phosphoric acid diester bond or a phosphorothioate bond.

Claim 67. (canceled)

Claim 68. (currently amended) The oligonucleotide analogue according to Claim 62 or a salt thereof, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected**[[,]]** ¿ 2,6-diamino-purin-9-yl; 2-amino-6-chloropurin-9-yl, 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-amino-6-hydroxypurin-9-yl, the amino

group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl; 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloro-purin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

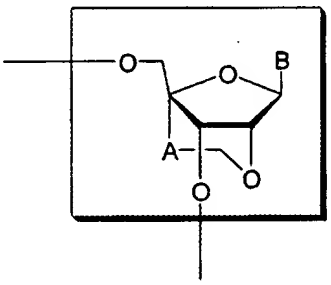
Claim 69. (canceled)

Claim 70. (currently amended) The oligonucleotide analogue according to Claim 62 or a salt thereof, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-

benzoylamino-~~pyridin-~~ pyrimidin 1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claim 71. (canceled)

Claim 72. (currently amended) A pharmaceutical composition comprising a pharmaceutically effective amount of a pharmacologically active compound together with a carrier therefor, wherein said pharmacologically active compound is an oligonucleotide analogue comprising two or more nucleoside units, wherein at least one of said nucleoside units is a structure of the formula (2):



(2)

wherein:
A represents ~~an alkylene~~ a methylene group ~~having from 1 to 4 carbon atoms~~; and

B is selected from the group consisting of an unsubstituted purin-9-yl group, an unsubstituted 2-oxo-pyrimidin-1-yl group, a purin-9-yl group substituted with at least one substituent α and a 2-oxo-pyrimidin-1-yl group substituted with at least one substituent α, said substituent α being selected from the group consisting of an unprotected hydroxyl group, a protected hydroxyl group, an alkoxy group having from 1 to 4 carbon atoms, an unprotected mercapto group, a protected mercapto group,an alkylthio group having from 1 to 4 carbon atoms, an unprotected amino group, a protected amino group, an amino group substituted by an alkyl group having from 1 to 4 carbon atoms, an alkyl group having from 1 to 4 carbon atoms and a halogen atom;
or a pharmacologically acceptable salt thereof.

Claim 73. (canceled)

Claim 74. (previously presented) A pharmaceutical composition according to Claim 72, wherein B is selected from the group consisting of 6-aminopurin-9-yl; 6-aminopurin-9-yl, the amino group of which is protected; 2,6-diamino-purin-9-yl; 2-amino-6-chloropurin-9-yl; 2-amino-6-chloropurin-9-yl, the amino group of which is protected; 2-amino-6-fluoropurin-9-yl; 2-amino-6-fluoropurin-9-yl, the amino group of which is protected; 2-amino-6-bromopurin-9-yl; 2-amino-6-bromopurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl; 2-

amino-6-hydroxypurin-9-yl, the amino group of which is protected; 2-amino-6-hydroxypurin-9-yl, the amino group and hydroxyl group of which are protected; 6-amino-2-methoxypurin-9-yl; 6-amino-2-chloropurin-9-yl, 6-amino-2-fluoropurin-9-yl; 2,6-dimethoxypurin-9-yl; 2,6-dichloro-purin-9-yl; 6-mercaptopurin-9-yl; 2-oxo-4-amino-pyrimidin-1-yl; 2-oxo-4-amino-pyrimidin-1-yl, the amino group of which is protected; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl; 2-oxo-4-amino-5-fluoro-pyrimidin-1-yl, the amino group of which is protected; 4-amino-2-oxo-5-chloro-pyrimidin-1-yl; 2-oxo-4-methoxy-pyrimidin-1-yl; 2-oxo-4-mercapto-pyrimidin-1-yl; 2-oxo-4-hydroxy-pyrimidin-1-yl; 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl; 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group and 4-amino-5-methyl-2-oxo-pyrimidin-1-yl group, the amino group of which is protected.

Claim 75. (canceled)

Claim 76 (currently amended) A pharmaceutical composition according to Claim 72, wherein B is selected from the group consisting of 6-benzoylaminopurin-9-yl, adeninyl, 2-isobutyrylamino-6-hydroxypurin-9-yl, guaninyl, 2-oxo-4-

benzoylamino-pyrimidin-1-yl, cytosinyl, 2-oxo-5-methyl-4-benzoylamino-~~pyridin-~~ pyrimidin 1-yl, 5-methylcytosinyl, uracinyl and thyminyl groups.

Claims 77 to 102. (canceled)

Claim 103. (new) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-6-N-benzoyladenosine or a salt thereof.

Claim 104. (new) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-2-N-isobutyrylguanosine or a salt thereof.

Claim 105. (new) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethyleneuridine or a salt thereof.

Claim 106. (new) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-5-methyluridine or a salt thereof.

Claim 107. (new) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoylcytidine or a salt thereof.

Claim 108. (new) 5'-O-Dimethoxytrityl-2'-O,4'-C-ethylene-4-N-benzoyl-5-methylcytidine or a salt thereof.

Claim 109. (new) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein B is a 6-benzoylaminopurin-9-yl group.

Claim 110. (new) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein B is a 2-isobutyrylamino-6-hydroxypurin-9-yl group.

Claim 111. (new) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein B is a uracinyl group.

Claim 112. (new) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein B is a 2-oxo-4-hydroxy-5-methylpyrimidin-1-yl group.

Claim 113. (new) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein B is a 2-oxo-4-benzoylamino-pyrimidin-1-yl group.

Claim 114. (new) The oligonucleotide analogue according to claim 62 or a salt thereof, wherein B is a 2-oxo-5-methyl-4-benzoylamino-pyrimidin-1-yl group.

REMARKS

Claims 1, 62 and 72 were amended to recite that "A" is methylene (see original claims 10 to 18, 67 and 73).

Claim 68 was amended to correct a minor punctuation error.

The amendments to claims 70 and 76 are supported by item (10) on page 30 of the specification.

New claim 103 is directed to the 5th compound recited in claim 55 and is exemplification compound number 1-31 (see Example 13 on page 87 of the specification).

New claim 104 is directed to the 6th compound recited in claim 55 and is exemplification compound number 1-35 (see Example 26 on page 94 of the specification).

New claim 105 is directed to the 16th compound recited in claim 55 and is exemplification compound number 2-15 (see Example 17 on pages 89 to 90 of the specification).

New claim 106 is directed to the 18th compound recited in claim 55 and is exemplification compound number 2-27 (see Example 8 on page 84 of the specification).

New claim 107 is directed to the 20th compound recited in claim 55 and is exemplification compound number 2-39 (see Example 4 on pages 81 to 82 of the specification).

New claim 108 is directed to the 22nd compound in claim 55 and is exemplification compound number 2-51 (see Example 21 on pages 91 to 92 of the specification).

New claims 109 to 111 and 113 to 114 recite features of item (10) on page 30 of the specification.

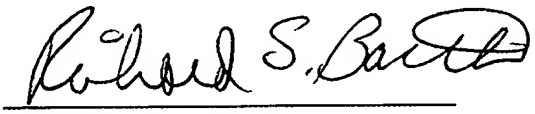
New claim 112 recites a feature of item (9) on page 30 of the specification.

An INFORMATION DISCLOSURE STATEMENT is being filed concomitantly herewith.

Enclosed is a check for $86 in payment of one extra independent claim.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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(2) Check for $86

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jesper Wengel et al.

Application No.: 10/208,650 Confirmation No.: 3515

Filed: July 29, 2002 Art Unit: 1637

For: OLIGONUCLEOTIDE ANALOGUES Examiner: J. Riley

MS Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

AMENDMENT UNDER 37 C.F.R. §1.312

Applicants respectfully request that the following amendment be entered prior to issuance of the above-captioned application. The present amendment is being filed prior to payment of the issue fee.

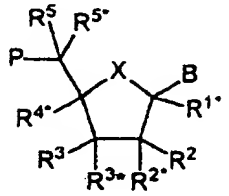
Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 14 of this paper.

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

157. (previously presented) A nucleoside analogue (hereinafter termed "LNA") of the general formula I



I

wherein X is selected from -O-;

B is selected from hydrogen, hydroxy, optionally substituted C_{1-4} alkoxy, optionally substituted C_{1-4}-alkyl, optionally substituted C_{1-4}-acyloxy, nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

P designates a 5'-terminal group optionally including the substituent R^5;

one of the substituents R^2, R^{2*}, R^3, and R^{3*} is a group P^* which designates an internucleoside linkage or a 3'-terminal group;

one pair of non-geminal substituents R^{4*}, and R^{2*}, designating a biradical selected from the following group:

(a) $-(CR^*R^*)_r$-O-$(CR^*R^*)_s$ - wherein r is 0 (zero) and s is greater than 1, or s is 0 (zero) and r is greater than 1,

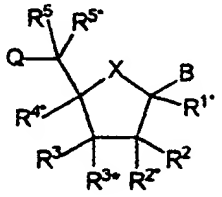
and further wherein each R^* is independently selected from hydrogen, halogen, hydroxy, mercapto, amino, optionally substituted C_{1-6}-alkoxy, optionally substituted C_{1-6}-alkyl, DNA

intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands; and

each of the substituents R^{1*}, R^2, R^3, R^5, and R^{5*}, which are present and not involved in P, P^* is independently selected from hydrogen, optionally substituted C_{1-12}-alkyl, optionally substituted C_{2-12}-alkenyl, optionally substituted C_{2-12}-alkynyl, hydroxy, C_{1-12}-alkoxy, C_{2-12}-alkenyloxy, carboxy, C_{1-12}-alkoxycarbonyl, C_{1-12}-alkylcarbonyl, formyl, aryl, aryloxy-carbonyl, aryloxy, arylcarbonyl, heteroaryl, heteroaryloxy-carbonyl, heteroaryloxy, heteroarylcarbonyl, amino, mono- and di(C_{1-6}-alkyl)amino, carbamoyl, mono- and di(C_{1-6}-alkyl)-amino-carbonyl, amino-C_{1-6}-alkyl-aminocarbonyl, mono- and di(C_{1-6}-alkyl)amino-C_{1-6}-alkyl-aminocarbonyl, C_{1-6}-alkyl-carbonylamino, carbamido, C_{1-6}-alkanoyloxy, sulphono, C_{1-6}-alkylsulphonyloxy, nitro, azido, sulphanyl, C_{1-6}-alkylthio, halogen, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands, where aryl and heteroaryl may be optionally substituted;

and basic salts and acid addition salts thereof.

158. (previously presented) A nucleoside analogue (hereinafter LNA) of the general formula II



II

wherein the substituent B is selected from nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

X is selected from -O-;

one of the substituents R^2, R^3, and R^{3*} is a group Q*;

each of Q and Q^* is independently selected from hydrogen, azido, halogen, cyano, nitro, hydroxy, Prot-O-, Act-O-, mercapto, Prot-S-, Act-S-, C_{1-6}- alkylthio, amino, ProtN(R^H)-, Act-N(R^H)-, mono- or di(C_{1-6}-alkyl)amino, optionally substituted C_{1-6} -alkoxy, optionally substituted

C_{1-6}-alkyl, optionally substituted C_{2-6}-alkenyl, optionally substituted C_{2-6}- alkenyloxy, optionally substituted C_{2-6}- alkynyl, optionally substituted C_{2-6}-alkynyloxy, monophosphate, diphosphate, triphosphate, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, ligands, carboxy, sulphono, hydroxymethyl, Prot-O-CH_2-, Act-O-CH_2-, aminomethyl, Prot-N(R^H)-CH_2-, Act-N(R^H)-CH_2-, carboxymethyl, sulphonomethyl, where Prot is a protection group for -OH, -SH, and -NH(R^H), respectively, Act is an activation group for -OH, -SH, and -NH(R^H), respectively, and R^H is selected from hydrogen and C_{1-6}-alkyl;

wherein R^{2*} and R^{4*} together designate a biradical selected from the following group:

(a) $-(CR^*R^*)_r-O-(CR^*R^*)_s-$ wherein r is 0 (zero) and s is greater than 1, or s is 0 (zero) and r is greater than 1,

and further wherein each R^* is independently selected from hydrogen, halogen, hydroxy, mercapto, amino, optionally substituted C_{1-6}-alkoxy, optionally substituted C_{1-6}-alkyl, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands; and

each of the substituents R^{1*}, R^2, R^3, R^5, and R^{5*}, which are not involved in Q, Q^*, is independently selected from hydrogen, optionally substituted C_{1-12} -alkyl, optionally substituted C_{2-12} - alkenyl, optionally substituted C_{2-12} -alkynyl, hydroxy, C_{1-12} -alkoxy, C_{2-12} -alkenyloxy, carboxy, C_{1-12} -alkoxycarbonyl, C_{1-12} alkylcarbonyl, formyl, aryl, aryloxy-carbonyl, aryloxy, arylcarbonyl, heteroaryl, heteroaryloxy-carbonyl, heteroaryloxy, heteroarylcarbonyl, amino, mono- and di(C_{1-6} - alkyl)amino, carbamoyl, mono- and di(C_{1-6} - alkyl)-amino-carbonyl, amino-C_{1-6} - alkylaminocarbonyl, mono- and di(C_{1-6} - alkyl)amino- C_{1-6} -alkyl-aminocarbonyl, C_{1-6} alkylcarbonylamino, carbamido, C_{1-6} alkanoyloxy, sulphono, C_{1-6} - alkylsulphonyloxy, nitro, azido, sulphanyl, C_{1-6} - alkylthio, halogen, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands, where aryl and heteroaryl may be optionally substituted;

and basic salts and acid addition salts thereof;

with the proviso that,

any chemical group (including any nucleobase), which is reactive under the conditions prevailing in oligonucleotide synthesis, is optionally functional group protected.

159 (previously presented). A nucleoside analogue according to claim 158, wherein the group B is selected from nucleobases and functional group protected nucleobases.

160 (previously presented). A nucleoside analogue according to any of the claims 158-159, wherein each of the substituents R^{1*}, R^2, R^3, R^{3*}, R^5, and R^{5*}, which are present and not involved in Q, Q^*, is independently selected from hydrogen, optionally substituted C_{1-6} - alkyl, optionally substituted C_{2-6} - alkenyl, hydroxy, C_{1-6} - alkoxy, C_{2-6},- alkenyloxy, carboxy, C_{1-6} - alkoxycarbonyl, C_{1-6} - alkylcarbonyl, formyl, amino, mono- and di(C_{1-6} - alkyl)amino, carbamoyl, mono- and di(C_{1-6} - alkyl)-amino-carbonyl, C_{1-6}- alkylcarbonylamino, carbamido, azido, C_{1-6} - alkanoyloxy, sulphono, sulphanyl, C_{1-6}-alkylthio, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, ligands, and halogen, and where R^{N*}, when present and not involved in a biradical, is selected from hydrogen and C_{1-4} -alkyl, with the proviso that any hydroxy, amino, mono(C_{1-6} - alkyl)amino, sulfanyl, and carboxy is optionally protected.

161 (previously presented). A nucleoside analogue according to any of the claims 158, 159, each of the substituents R^{1*}, R^2,R^3, R^{3*},and R^5, R^{5*}, which are present and not involved in Q^* designate hydrogen.

162 (previously presented). A nucleoside analogue according to any of the claims 158, 159, wherein R^{3*} designates P^*.

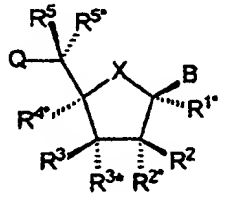
163 (previously presented). A nucleoside analogue according to claim 158, wherein Q is independently selected from hydrogen, azido, halogen, cyano, nitro, hydroxy, Prot-O-, mercapto, Prot-S-, C_{1-6}-alkylthio, amino, Prot-N(R^H)-, mono- or di(C_{1-6} alkyi)amino,

optionally substituted C_{1-6}- alkoxy, optionally substituted C_{1-6}-alkyl, optionally substituted C_{2-6}- alkenyl, optionally substituted C_{2-6} alkenyloxy, optionally substituted C_{2-6}- alkynyl, optionally substituted C_{2-6}- alkynyloxy, monophosphate, diphosphate, triphosphate, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, ligands, carboxy, sulphono, hydroxymethyl, Prot-O-CH_2-,

aminomethyl, Prot-N(R^H)-CH_2-, carboxymethyl, sulphonomethyl, where Prot is a protection group for -OH, -SH, and -NH(R^H), respectively, and R^H is selected from hydrogen and C_{1-6} -alkyl; and

Q^* is selected from hydrogen, azido, halogen, cyano, nitro, hydroxy, Act-O-, mercapto, Act-S-, C_{1-6},- alkylthio, amino, Act-N(R^H)-, mono- or di(C_{1-6}-alkyl)amino, optionally substituted C_{1-6} alkoxy, optionally substituted C_{1-6} -alkyl, optionally substituted C_{2-6} alkenyl, optionally substituted C_{2-6} alkenyloxy, optionally substituted C_{2-6} alkynyl, optionally substituted C_{2-6} alkynyloxy, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, ligands, carboxy, sulphono, where Act is an activation group for -OH, -SH, and - NH(R^H), respectively, and R^H is selected from hydrogen and C_{1-6}-alkyl.

164 (previously presented) A nucleoside analogue according to claim 158, having the general formula IIa



IIa

wherein the substituents Q, B, R^{1*}, R^2, R^{2*}, R^3, R^{3*}, R^{4*}, R^5, and R^{5*} are as defined in claim 158 provided the nucleoside analogue has a configuration other than α-L.

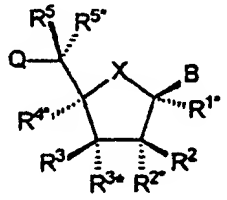
165 (previously presented) A nucleoside analogue according to claim 164, wherein R^{3*} designates P^*.

166. (previously presented) A nucleoside analogue according to claim 165, wherein R^2 selected from hydrogen, hydroxy, and optionally substituted C_{1-6} -alkoxy, and R^{1*}, R^3, R^5, and R^{5*}, designate hydrogen.

167. (previously presented) A nucleoside analogue according to any of the claims 165 or 166, wherein B is selected from nucleobases.

168. (previously presented) A nucleoside analogue according to claim 167, wherein B is selected from adenine and guanine thymine, cytosine uracil purine, xanthine, diaminopurine, 8-oxo-N^6-methyladenine, 7-deazaxanthine, 7-deazaguanine, N^4,N^4-ethanocytosin, N^6,N^6-ethano-2,6-diaminopurine, 5-methylcytosine, 5-(C^3-C^6)-alkynylcytosine, 2,6-diaminopyrimidine,2,6-diaminopyrazine,1-methyl-pyrazolo[4,3-d]pyrimidine-5,7(4H,6H)-dione,1-methyl-pyrazolo[4,3-d]pyrimidine-5,7(4H,6H)-dione, 5-fluorouracil, 5-bromouracil, pseudoisocytosine, 2-hydroxy-5-methyl-4-triazolopyridin, isocytosine, isoguanin, and inosine.

169. (previously presented) A nucleoside analogue according to claim 158 of the general formula IIa.



IIa

wherein X is -O-;

B is selected from nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

R^{3*} is a group Q*;

each of Q and Q* is independently selected from hydrogen, azido, halogen, cyano, nitro, hydroxy, Prot-O-, Act-O-, mercapto, Prot-S-, Act-S-, C_{1-6}- alkylthio, amino, Prot-N(R^H)-, Act-N(R^H)-, mono- or di(C_{1-6}-alkyl)amino, optionally substituted C_{1-6}-alkoxy, optionally substituted C_{1-6}-alkyl, optionally substituted C_{2-6}-alkenyl, optionally substituted C_{2-6}-alkenyloxy, optionally substituted C_{2-6}-alkynyl, optionally substituted C_{2-6}-alkynyloxy, monophosphate, diphosphate, triphosphate, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, ligands,

carboxy, sulphono, hydroxymethyl, Prot-O-CH_2-, Act-O-CH_2- , aminomethyl, Prot-N(R^H)-CH_2-, Act-N(R^H)-CH_2-, carboxymethyl, sulphonomethyl, where Prot is a protection group for -OH, -SH, and -NH(R^H), respectively, Act is an activation group for -OH, -SH, and -NH(R^H), respectively, and R^H is selected from hydrogen and C_{1-6}-alkyl;

R^{2*} and R^{4*} together designate a biradical selected selected from the following group:

(a) $-(CR^*R^*)_r$-O-$(CR^*R^*)_s$- wherein r is 0 (zero) and s is greater than 1, or s is 0 (zero) and r is greater than 1,

and further wherein each R^* is independently selected from hydrogen, halogen, hydroxy, mercapto, amino, optionally substituted C_{1-6}-alkoxy, optionally substituted C_{1-6}-alkyl, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

each of the substituents R^{1*}, R^2, R^3, R^5, and R^{5*} is independently selected from hydrogen, optionally substituted C_{1-6}-alkyl, optionally substituted C_{2-6},-alkenyl, hydroxy, C_{1-6},-alkoxy, C_{2-6},-alkenyloxy, carboxy, C_{1-6}-alkoxycarbonyl, C_{1-6}-alkylcarbonyl, formyl, amino, mono- and di(C_{1-6}-alkyl)amino, carbamoyl, mono- and di(C_{1-6}-alkyl)-amino-carbonyl, C_{1-6}-alkyl-carbonylamino, carbamido, azido, C_{1-6}-alkanoyloxy, sulphono, sulphanyl, C_{1-6}-alkylthio, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands, and halogen; and basic salts and acid addition salts thereof; and with the proviso that any chemical group (including any nucleobase), which is reactive under the conditions prevailing in oligonucleotide synthesis, is optionally functional group protected.

170. (previously presented) A nucleoside analogue according to any of the claim 169, wherein B is selected from nucleobases.

171. (previously presented) A nucleoside analogue according to claim 170, wherein B is selected from adenine and guanine thymine, cytosine uracil purine, xanthine, diaminopurine, 8-oxo-N^6-methyladenine, 7-deazaxanthine, 7-deazaguanine, N^4,N^4-ethanocytosin, N^6,N^6-ethano-2,6-diaminopurine, 5-methylcytosine, 5-(C^3-C^6)-alkynylcytosine, 2,6-diaminopyrimidine,2,6-diaminopyrazine,1-methyl-pyrazolo[4,3-d]pyrimidine-5,7(4H,6H)-dione,1-methyl-pyrazolo[4,3-

d]pyrimidine-5,7(4H,6H)-dione, 5-fluorouracil, 5-bromouracil, pseudoisocytosine, 2-hydroxy-5-methyl-4-triazolopyridin, isocytosine, isoguanin, and inosine.

172. (previously presented). A kit for the isolation, purification, amplification, detection, identification, quantification, or capture of natural or synthetic nucleic acids, the kit comprising a reaction body and one or more LNAs as defined in claim 157.

173. (previously presented) A nucleic acid compound comprising the nucleoside analogue of claim 157.

174. (previously presented) The nucleoside analogue of claim 169, wherein Q* represents an activation group for –OH, -SH, and –NH(R^H).

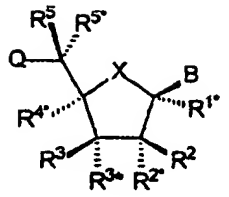
175. (previously presented) The nucleoside analogue of claim 169, wherein said activation group is an optionally substituted phosphoramidite.

176. (previously presented) The nucleoside analogue of claim 169, wherein the nucleoside analogue is a 3'-phosphoramidite derivative.

177. (previously presented) The nucleoside analogue of claim 176, wherein the nucleoside analogue is an O-phosphoramidite.

178. (previously presented) The nucleoside analogue of claim 177, wherein the O-phosphoramidite is N,N-diisopropyl-O-(2-cyanoethyl)phosphoramidite.

179. (previously presented) A nucleoside analogue of the general formula IIa.



IIa

wherein X is -O-;

B is selected from nucleobases, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

R^{3*} is a group Q*;

each of Q and Q^* is independently selected from hydrogen, azido, halogen, cyano, nitro, hydroxy, Prot-O-, Act-O-, mercapto, Prot-S-, Act-S-, $C_{,1-6}$- alkylthio, amino, Prot-N(R^H)-, Act-N(R^H)-, mono- or di(C_{1-6}-alkyl)amino, optionally substituted C_{1-6}-alkoxy, optionally substituted C_{1-6}-alkyl, optionally substituted C_{2-6}-alkenyl, optionally substituted C_{2-6}-alkenyloxy, optionally substituted C_{2-6}-alkynyl, optionally substituted C_{2-6}-alkynyloxy, monophosphate, diphosphate, triphosphate, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, ligands, carboxy, sulphono, hydroxymethyl, Prot-O-CH_2-, Act-O-CH_2- , aminomethyl, Prot-N(R^H)-CH_2-, Act-N(R^H)-CH_2-, carboxymethyl, sulphonomethyl, where Prot is a protection group for -OH, -SH, and -NH(R^H), respectively, Act is an activation group for -OH, -SH, and -NH(R^H), respectively, and R^H is selected from hydrogen and C_{1-6}-alkyl;

R^{2*} and R^{4*} together designate a biradical selected selected from the following group:

(a) $-(CR^*R^*)_r-O-(CR^*R^*)_s$ - wherein r is 0 (zero) and s is greater than 1, or s is 0 (zero) and r is greater than 1,

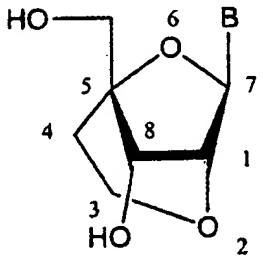
and further wherein each R^* is independently selected from hydrogen, halogen, hydroxy, mercapto, amino, optionally substituted C_{1-6}-alkoxy, optionally substituted C_{1-6}-alkyl, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands;

each of the substituents R^{1*}, R^2, R^3, R^5, and R^{5*} is independently selected from hydrogen, optionally substituted C_{1-6}-alkyl, optionally substituted C_{2-6},-alkenyl, hydroxy, C_{1-6},-alkoxy, C_{2-6},-alkenyloxy, carboxy, C_{1-6}-alkoxycarbonyl, C_{1-6}-alkylcarbonyl, formyl, amino, mono- and di(C_{1-6}-alkyl)amino, carbamoyl, mono- and di(C_{1-6}-alkyl)-amino-carbonyl, C_{1-6}-alkyl-carbonylamino, carbamido, azido, C_{1-6}-alkanoyloxy, sulphono, sulphanyl, C_{1-6}-alkylthio, DNA intercalators, photochemically active groups, thermochemically active groups, chelating groups, reporter groups, and ligands, and halogen;

and basic salts and acid addition salts thereof;

and with the proviso that any chemical group (including any nucleobase), which is reactive under the conditions prevailing in oligonucleotide synthesis, is optionally functional group protected.

180. (previously presented) The nucleoside analogue of claim 157, wherein the analogue is represented by the following structure:



ENA

B = adenine, guanine, thymine, 5-methyl-cytosine, cytosine, uracil, 2,6-diaminopurine

181. (previously presented) The nucleoside analogue of claim 180, wherein the analogue is one of the following specific compounds:

a) (1*R*,5*R*,7*R*,8*S*)-8-hydroxy-5-(hydroxymethyl)-7-(adenin-9-yl)-2,6-dioxabicyclo[3.2.1]octane,

b) (1*R*,5*R*,7*R*,8*S*)-8-hydroxy-5-(hydroxymethyl)-7-(guanin-9-yl)-2,6-dioxabicyclo[3.2.1]octane,

c) (1*R*,5*R*,7*R*,8*S*)-8-hydroxy-5-(hydroxymethyl)-7-(thymin-1-yl)-2,6-dioxabicyclo[3.2.1]octane,

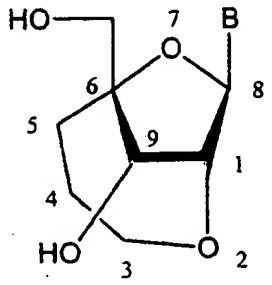
d) (1*R*,5*R*,7*R*,8*S*)-8-hydroxy-5-(hydroxymethyl)-7-(5-methyl-cytosin-1-yl)-2,6-dioxabicyclo[3.2.1]octane,

e) (1*R*,5*R*,7*R*,8*S*)-8-hydroxy-5-(hydroxymethyl)-7-(cytosin-1-yl)-2,6-dioxabicyclo[3.2.1]octane,

f) (1*R*,5*R*,7*R*,8*S*)-8-hydroxy-5-(hydroxymethyl)-7-(uracil-1-yl)-2,6-dioxabicyclo[3.2.1]octane; and

g) (1*R*,5*R*,7*R*,8*S*)-8-hydroxy-5-(hydroxymethyl)-7-(2,6-diaminopurin-9-yl)-2,6-dioxabicyclo[3.2.1]octane.

182. (previously presented) The nucleoside analogue of claim 157, wherein the analogue is represented by the following structure:



Propena

B = adenine, guanine, thymine, 5-methyl-cytosine, cytosine, uracil, 2,6-diaminopurine

Claim 183. (currently amended) The nucleoside analogue of claim ~~182~~ 157, wherein the analogue is one of the following specific compounds:

a) (1*R*,3*R*,4*S*,7*R*)-7-hydroxy-1-(hydroxymethyl)-3-(adenin-9-yl)-2,5-dioxabicyclo[2.2.1]heptane,

b) (1*R*,3*R*,4*S*,7*R*)-7-hydroxy-1-(hydroxymethyl)-3-(guanin-9-yl)-2,5-dioxabicyclo[2.2.1]heptane,

c) (1*R*,3*R*,4*S*,7*R*)-7-hydroxy-1-(hydroxymethyl)-3-(thymin-1-yl)-2,5-dioxabicyclo[2.2.1]heptane,

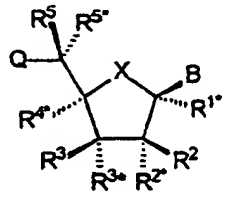
d) (1*R*,3*R*,4*S*,7*R*)-7-hydroxy-1-(hydroxymethyl)-3-(5-methyl-cytosin-1-yl)-2,5-dioxabicyclo[2.2.1]heptane,

e) (1*R*,3*R*,4*S*,7*R*)-7-hydroxy-1-(hydroxymethyl)-3-(cytosin-1-yl)-2,5-dioxabicyclo[2.2.1]heptane,

f) (1*R*,3*R*,4*S*,7*R*)-7-hydroxy-1-(hydroxymethyl)-3-(uracil-1-yl)-2,5-dioxabicyclo[2.2.1]heptane; and

g) (1*R*,3*R*,4*S*,7*R*)-7-hydroxy-1-(hydroxymethyl)-3-(2,6-diaminopurin-9-yl)-2,5-dioxabicyclo[2.2.1]heptane.

184 (previously presented). A nucleoside analogue according to claim 158, having the general formula IIa



IIa

wherein the substituents Q, B, R^{1*}, R^2, R^{2*}, R^3, R^{3*}, R^{4*}, R^5, and R^{5*} are as defined in claim 158 provided the nucleoside analogue has a configuration other than β-D.

185. (previously presented) A method of preparing an LNA modified oligonucleutide (an oligomer) comprising making the oligonucleotide with the LNA of Claim 157.

186 (previously presented) The method of claim 185, wherein the LNA modified oligonucleotide comprises normal nucleosides.

187 (previously presented). A nucleoside analogue according to claim 160, wherein each of the substituents R^{1*}, R^2,R^3, R^{3*},and R^5, R^{5*}, which are present and not involved in Q^* designate hydrogen.

188 (previously presented). A nucleoside analogue according to claim 160, wherein R^{3*} designates P^*.

189 (previously presented). A nucleoside analogue according to claim 161, wherein R^{3*} designates P^*.

REMARKS

Applicants request that the present amendment under 37 CFR §1.312 be entered prior to issuance of the above-captioned patent application. The amendment is intended to address an inadvertent typographical error. Specifically, Applicants have amended claim 183 to change dependency from 182 to claim 157. The amendment is not intended to address any matter related to patentability.

Applicants believe that no fee is required to consider and enter the instant amendment. However, if for any reason a fee is deemed necessary, the USPTO is hereby authorized and requested to charge Deposit Account No. **04-1105** for such fee.

Dated: December 20, 2004

Respectfully submitted,

By _____

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#470917

Application No. (if known): 10/208,650 Attorney Docket No.: 49165C3(71994)

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Amendment Under 37 CFR §1.312 (14 pages)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No. : 09/925,673

Applicants : Masakatsu KANEKO et al.

Filed : August 9, 2001

For : NOVEL NUCLEOSIDE AND OLIGONUCLEOTIDE ANALOGUES

Art Unit : 1623

Examiner : Howard Owens, Jr.

Docket No. : 01376CIP/HG

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Dorothy DeFrancesco

In the event that this Paper is late filed, and the necessary petition for extension of time is not filed concurrently herewith, please consider this as a Petition for the requisite extension of time, and to the extent not tendered by check attached hereto, authorization to charge the extension fee, or any other fee required in connection with this Paper to Account No. 06-1378.

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ATTENTION: MAIL STOP RCE

S I R :

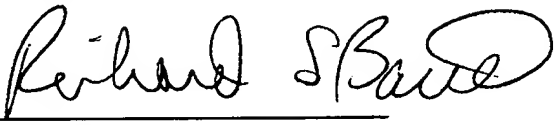
Submitted herewith are the following:

(1) copies of four U.S. patent documents; and

(2) Form PTO/SB/08A.

It is respectfully requested that the attached publications be considered and made "of record."

Respectfully submitted,



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PTO/SB/08A (08-00)

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for Form 1449A/PTO	Application Number	09/925,673
	Filed	August 9, 2001
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	First Named Inventor	Masakatsu KANEKO
	Group Art Unit	1623
	Examiner Name	Howard Owens, Jr.
Sheet 1 of 1	Attorney Docket Number	01376CIP/HG

U.S. PATENT DOCUMENTS

Exam. Inits*	Cite No[1]	Document Number	Kind Code[2]	Name of Patentee or Applicant	Publication Date MM-DD-YYYY	Relevant Portion
		6,670,461	B1	WENGEL et al.	12-30-2003	
		2002/0068708	A1	WENGEL et al.	06-06-2002	
		2003/0134808	A1	WENGEL et al.	07-17-2003	
		2003/0144231	A1	WENGEL et al.	07-31-2003	

FOREIGN PATENT DOCUMENTS

Exam Inits*	Cite No[1]	Offc[3]	Document Number[4]	Kind Code[5]	Name of Patentee or Applicant	Publication Date MM-DD-YYYY	Relevant Portion	T[6]

Examiner Signature		Date Considered	

* EXAMINER: Initial if document considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] Unique citation designation number. [2] See kinds of U.S. Patent Documents. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Place a check here if English translation is attached.

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EXAMINER	
OWENS JR, HOWARD V	
ART UNIT	PAPER NUMBER
1623	

DATE MAILED: 01/31/2005

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,673	08/09/2001	Masakatsu Kaneko	01376CIP/HG	4630

TITLE OF INVENTION: NOVEL NUCLEOSIDE AND OLIGONUCLEOTIDE ANALOGUES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1400	$300	$1700	05/02/2005

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 12/04) Approved for use through 04/30/2007.

Notice of Allowability	Application No.	Applicant(s)	
	09/925,673	KANEKO ET AL.	
	Examiner	Art Unit	
	Howard V Owens	1623	

-- ***THE MAILING DATE of this communication appears on the cover sheet with the correspondence address***--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the RCE filed on 8/17/2004*.

2. ☒ The allowed claim(s) is/are *1-77*.

3. ☐ The drawings filed on _____ are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 9/30/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

JAMES O. WILSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600